

REMARKS

This Amendment is in response to the December 1, 2006 Office Action. The Examiner rejected claims 1 and 19-22 under 35 U.S.C. 103(a) as being unpatentable over Ratte et al. (U.S. Patent No. 6,902,095 B2) and further in view of Williamson et al. (U.S. Patent No. 5,553,764). Next, the Examiner rejected claims 2-6 and 8-14 under 35 U.S.C. 103(a) as being unpatentable over Ratte et al. and Williamson et al. as applied to claim 1, and further in view of Whitney (U.S. Patent No. 2,353,531). Finally, the Examiner rejected claims 1, 7, 20 and 22 under 35 U.S.C. 103(a) as being unpatentable over Ratte et al. and Williamson et al. and further in view of Landgrebe (U.S. Patent No. 5,704,749).

The Applicant appreciates the time and consideration that the Examiner has provided in reviewing this application. By the above amendment, claims 1-14 and 19-22 have been canceled without prejudice and new claims 23-35 have been added. Applicants respectfully submit that claims 23-35 are allowable over all of the cited art and that the present amendment should be entered.

The present invention is directed to a battery terminal for use in a battery cell. The battery terminal preferably has a bolt comprising a head portion, a washer portion, a sealing portion, and a threaded portion. The threaded portion of the bolt is located outside of the insert mold cavity while the rest of the bolt is encased in lead-alloy, the combination making up the battery terminal.

The insert molding of the bolt into a lead-alloy casting presents a myriad of manufacturing and structural issues. The present invention provides a sealing portion that is

disposed between the washer portion and the threaded portion in the form of a frustoconical shape that allows the bolt to seal an insert molding mold cavity from leaks when placed into the mold. In other words, it creates a shut-off point through which no lead-alloy can escape the mold cavity. It is common during insert molding, which by nature utilizes very high temperatures, for molten lead to leak from the mold cavity onto the threaded portion of the bolt due to insufficient sealing of the mold cavity by the bolt, causing problems for manufacturers who must waste time to remove the lead from the bolt when received. Also, the leakage prevents a firm connection between the leads of the device requiring power and the battery terminal. The sealing portion of the present invention, as a unique conical surface, provides a uniform surface that substantially seals the mold cavity and prevents lead from escaping the mold onto the threaded portion of the bolt.

Applicants respectfully submit that none of the prior art cited by the Examiner discloses, teaches or suggests the present invention. None of the newly added claims 23-35 are obvious based upon any of the cited art. Claim 23 was added to specify that the lead portion is a lead casting that surrounds the bolt head, washer, and sealing portion of the battery terminal, and that it is not possible for molten lead to leak from the mold cavity past the sealing portion of the bolt and onto the threaded portion thereof. Obviousness requires that each and every element of a claim be present in a combination of references, along with a teaching, motivation and suggestion of success in combining them. *See* MPEP 2143.01. A modification to a reference is not obvious if it changes that reference's principle of operation. MPEP § 2143.01. In addition, a modification to a reference that renders the reference unsatisfactory for its intended purpose is not obvious. *Id.*

The combination of Ratte et al. and the other cited prior art fail to teach the present invention. The Examiner cites Ratte et al. in his obviousness rejection of independent claims 1 and 8 as disclosing a method of cold forming a two-part battery terminal and a two-part cold formed battery terminal comprising a cold formed lead or lead alloy slug. As amended, the present invention is directed to a battery terminal for use in a battery cell. The method disclosed in Ratte et al. is specifically directed to a cold forming process of making a battery terminal, whereas the present invention is for a battery terminal made from a bolt and a molten lead casting molded thereon. Ratte et al.'s principle of operation is inherently different from the present invention. One skilled in the art would not look to Ratte et al. to solve the problem of lead-alloy leaking from an insert molding mold cavity onto the battery terminal's threads because a cold forming process does not fundamentally deal with such leakage problems. Cold forming is a high-speed manufacturing process that produces parts by using machines to apply very large brute forces to metal, forces that are greater than the metal's elastic limit, in order to form various shapes therein as opposed to metal forming cutting or heating. Therefore, during the cold forming process there is never any issue with regard to the type of leakage solved by the present invention.

Accordingly, Ratte et al., as well as the other prior art cited, fail to teach a battery terminal bolt used specifically during an insert molding process because they do not deal with the same problem as is addressed in the present invention. The new claims are therefore not obvious.

CONCLUSION

In conclusion, and in view of the Amendment and Remarks set forth above, the Applicants respectfully submit that the application and the claims are in condition for allowance and respectfully request favorable consideration and the timely allowance of all pending claims.

Applicants respectfully submit that the amendments herein demonstrate Applicants' preference for a particular language and, notwithstanding anything to the contrary, are not intended to be amendments related to patentability. Furthermore, Applicants respectfully submit that the amendments herein merely add language of equivalent scope, and that nothing herein is intended to narrow the scope of the claims.

The Commissioner is hereby authorized to charge any additional fees (or credit any overpayment) associated with this communication to our Deposit Account No. 13-0019. If a fee is required for an extension of time under 37 C.F.R. 1.136 not accounted for above, such extension is requested and should also be charged to our Deposit Account.

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